

CLAIMS

1. A refrigerated air supply system (21,121) for a freezer and/or refrigerator cabinet
5 having at least one cabinet compartment (17,117) at least partly defined by inner walls (16,116), an insulation layer at least partly enclosing said cabinet compartment, said cabinet compartment (17,117) having a compartment opening facing substantially upwards which compartment opening connects said cabinet compartment (17,117) with the space surrounding said cabinet, said cabinet also comprising a door (19,119) which
10 in one position covers said compartment opening and substantially closes said cabinet compartment (17,117), said cabinet also comprising a machine compartment (23,123) for storing at least one compressor, at least one of said inner walls (16,116) having a substantially horizontal shelf (52,152) plane, at least one of the planes (52) being positioned vertically above said machine compartment (23,123), **characterized in**
15 - that said refrigerated air supply system (21,121) is positioned inside at least one of said cabinet compartments, the system comprising at least one evaporator (26,126), at least one return ducting part (21,121) and at least one fan (28,128),
- that said refrigerated air supply system (21,121) comprises at least one air supply outlet (39,139) which provides an airflow (47,171) into at least one of said cabinet
20 compartments (17,117) and at least one air supply inlet which brings an airflow (50,174) out from at least one of said cabinet compartments (17,117).
2. Refrigerated air supply system according to claim 1 **characterized in** that said evaporator (26) is positioned in a substantially vertical or leaning position.
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3. Refrigerated air supply system according to any of the preceding claims **characterized in** that said evaporator (26) comprises fins oriented to enable for a substantially vertical airflow (50) to pass through the evaporator (26).
- 30 4. Refrigerated air supply system according to any of the preceding claims **characterized in** that at least one of said evaporators (26) is being positioned between one of said return ducting parts (25) and at least one of said inner walls (16).

5. Refrigerated air supply system according to any of the preceding claims **characterized in** that at least one of said fans (28) is being positioned substantially vertically above said evaporator (26).
6. Refrigerated air supply system according to any of the preceding claims
5 **characterized in** that at least one of said fans (28) during operation comprised means which creates an airflow (50) that passes through the evaporator (26).
7. Refrigerated air supply system according to any of the preceding claims **characterized in** that at least one of said fans (28) is being positioned between one of
10 said return ducting parts (25) and at least one of said inner walls (16).
8. Refrigerated air supply system according to any of the preceding claims **characterized in** that the air supply system (21) comprises a frost-free system with at least one heating cable mounted at least one of said evaporator (26) and at least one
15 water-collecting part (27) positioned vertically below that evaporator (26), said water-collecting part (27) comprising means to collect water from that evaporator (26).
9. Refrigerated air supply system according to any of the preceding claims **characterized in** that said door (19) on the underside (46) which faces the cabinet
20 compartment (17) comprises grooves or similar which improves an airflow (47) passing along the underside (46).
10. Refrigerated air supply system according to any of the preceding claims **characterized in** that at least one of said air supply outlets (39) and at least one of said
25 air supply inlets is formed at the return ducting part (25).
11. Refrigerated air supply system according to claim 10 **characterized in** that that at least one of said return ducting parts (25) comprises an airflow directing part (37) forming at least one of said air supply outlets (39), the outlet substantially vertically
30 facing said cabinet compartment (17) and providing said airflow (47) so that it during at least some occasions at least partly passes along the underside (46) of said door (19), said underside (46) facing the cabinet compartment (17).

12. Refrigerated air supply system according to any of the claims 10 - 11 **characterized in** that the distance between the lowest end (33) of said return ducting part (25) and the lowest part of said cabinet compartment (17) forms at least one of said air supply inlets, the air supply inlet bringing an airflow (50) out from the lowest end of the cabinet compartment (17).

13. Refrigerated air supply system according to any of the claims 10 - 12 **characterized in** that at least one of said air supply outlets (39) and/or at least one of said air supply inlets comprise means forming a grill partly covering the outlet and/or inlet.

14. Refrigerated air supply system according to any of the preceding claims **characterized in** that at least one of said return ducting part (25) is designed to cooperate with at least one of said inner walls (16) so that a substantially airtight surface contact is achieved between the part (25) and the inner wall (16), said part (25) together with the inner wall (16) together at least partly contributes to enclose a refrigerator compartment inside which at least one of the evaporators (26) and/or at least one of the fans (28) is positioned.

15. Refrigerated air supply system according to any of the preceding claims **characterized in** that said return ducting part has surrounding walls at least partly contributing to enclose a refrigerator compartment inside which at least one of the evaporators (26) and/or at least one of the fans (28) is positioned.

16. Refrigerated air supply system according to any of the claims 14 – 15 **characterized in** that said refrigerator compartment extends between at least one of said air supply outlets (39) and at least one of said air supply inlets.

17. Refrigerated air supply system according to claims 16 **characterized in** that at least one duct (32) is formed in the lower part (31) of said refrigerator compartment, said duct (32) extending substantially in parallel with at least one of said inner walls (16) and creating a connection for an airflow between at least one of said air supply outlets, at least one of said air supply inlets and said evaporator (26).

18. Refrigerated air supply system according to any of the preceding claims
characterized in that said return ducting part (25) at least partly is positioned vertically
5 above said shelf plane (52).
19. Refrigerated air supply system according to any of the preceding claims
characterized in that said air supply system (21) comprises a floor ducting part (22)
providing ducts extending along the lowest substantially horizontal part of said cabinet
10 compartment (17), said floor ducting part in each end having at least one floor duct
opening (40 – 41) creating a connection for an airflow between at least one of the ducts
and the cabinet compartment (17) and/or at least one of said air supply inlets.
20. Refrigerated air supply system according to claim 19 **characterized in** that at least
15 one of said floor duct openings (41) comprise means (42) forming a grill partly covering
the opening (41).
21. Refrigerated air supply system according to any of the claims 19 - 20 **characterized
in** that said floor ducting part (22) is detachably positioned inside said cabinet
20 compartment (17).
22. Refrigerated air supply system according to any of the preceding claims
characterized in that at least one of said inner walls (16) and/or the floor ducting parts
(22) side facing the cabinet compartment (17) comprises grooves or similar which
25 improves an airflow passing along the wall or part.
23. Refrigerated air supply system according to any of claims 1-8 **characterized in** that
said door (119) comprises a door ducting part (146) comprising at least one door inlet
(161) and at least one door outlet (163), at least one door ducting space creating a
30 connection for an airflow (170) between at least one of the door inlets (161) and at least
one of the door outlets (163).

24. Refrigerated air supply system according to claim 23 **characterized in** that at least one of said door inlets (161) brings an airflow from at least one of said air supply outlets (136) into at least one of said door ducting spaces.
- 5 25. Refrigerated air supply system according to claim 24 **characterized in** that said airflow being brought to the door ducting space when said door (119) closes said cabinet compartment.
- 10 26. Refrigerated air supply system according to any of the claims 23 - 25 **characterized in** that said door ducting part (146) comprises a separating means (168) dividing the airflow (170) inside said door ducting space so that it flows towards at least two separate door outlets (163) respectively.
- 15 27. Refrigerated air supply system according to any of the claims 23 - 26 **characterized in** that said door ducting part (146) comprises two distinctive rows of door outlets (163), the area of the outlets (163) of each row respectively being larger in one end of the door ducting part than in its other end.
- 20 28. Refrigerated air supply system according to any of claims 1-8 or 23-27 **characterized in** that at least one of said air supply outlets (136) and at least one of said air supply inlets is formed at the return ducting part (125).
- 25 29. Refrigerated air supply system according to claim 28 **characterized in** that at least one of said return ducting parts (125) comprises an airflow directing part (135) forming at least one of said air supply outlets (136), the airflow directing part (135) having means to cooperate with at least one door inlet (161) being positioned at said door.
- 30 30. Refrigerated air supply system according to any of the previous claims **characterized in** that the door (19,119) is provided with at least one hoder (184) for an ice tube container (185).
31. Refrigerated air supply system according to claim 30 **characterized in** that the container (185) is provided with a removable cover (187) and several projections (186) forming pockets within the container.